General

Guideline Title

Preventive services for children and adolescents.

Bibliographic Source(s)

Wilkinson J, Bass C, Diem S, Gravley A, Harvey L, Maciosek M, McKeon K, Milteer L, Owens J, Rothe P, Snellman L, Solberg L, Vincent P. Preventive services for children and adolescents. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2013 Sep. 96 p. [229 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Wilkinson J, Bass C, Diem S, Gravley A, Harvey L, Hayes R, Johnson K, Maciosek M, McKeon K, Milteer L, Morgan J, Rothe P, Snellman L, Solberg L, Storlie C, Vincent P. Preventive services children and adolescents. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2012 Sep. 98 p.

Recommendations

Major Recommendations

Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical Systems Improvement (ICSI): For a description of what has changed since the previous version of this guidance, refer to Summary of Changes Report — September 2013 (see the "Guideline Availability" field). In addition, ICSI has made a decision to transition to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system as a method of assessing the quality of evidence and writing recommendations. This document is in transition to the GRADE methodology.

Transition steps incorporating GRADE methodology for this document include the following:

- All new literature considered by the work group for this revision has been assessed using GRADE methodology.
- Work is being done on placing strengths on recommendations.

The recommendations for preventive services for children and adolescents are presented in the form of two tables accompanied by detailed annotations. Four levels of service appear in the Annotation Table, with each service name listed alphabetically within its level. The second table, "Preventive Services Addressed in Alphabetical Order," has been included to facilitate locating a particular service even if the

reader does not know which level of service is affiliated with it. The tables are provided in the original guideline document at the ICSI Web site (see the "Guideline Availability" field). Clinical highlights and selected annotations (numbered to correspond with the Annotation Table) follow.

Class of evidence (Low Quality, Moderate Quality, High Quality) and strength of recommendation (Weak or Strong) definitions are provided at the end of the "Major Recommendations" field.

The work group has prioritized the services included in this guideline; they are ranked by evidence for effectiveness, based upon the sum of their clinically preventable burden and cost effectiveness.

Level I preventive services: Clinicians and care systems *must* assess the need for and recommend these services to every patient. These have the highest value and are worthy of attention at every opportunity.

Level II preventive services: Clinicians and care systems *should* assess the need for and recommend these services to every patient. These have demonstrated value although less than Level I services, and should be provided whenever possible.

Level III preventive services: Clinicians and care systems *could* recommend these services to patients, but only after careful consideration of costs and benefits. These are services for which the evidence of effectiveness is currently incomplete or equivocal, or which may have the potential for significant harm. Providing these services is left to the judgment of individual medical groups, clinicians and their patients. Decisions about preventive services in particular should be made based on the principles of shared decision-making.

Level IV preventive services: These services are *not* supported by evidence and should not be recommended. They may have insufficient evidence of effectiveness, clear evidence of lack of effectiveness, or the potential for significant harm without any benefit.

Clinical Highlights

All clinic contacts—whether acute, chronic, or for preventive service—are opportunities for prevention.
Incorporate appropriate preventive services at every opportunity.
Address or initiate child preventive services that clinicians and care systems *must* assess the need for and recommend to each patient. These have the highest priority value (Level I). *(Annotation Table, Level I Services; Aim #1)*

- Childhood immunization series
- Chlamydia screening (sexually active age 25 years and younger)
- Neonatal screening

Provide timely feedback, appropriate interventions, and optimal follow-up.

Preventive Services for Children and Adolescents Algorithm Annotations

Preventive Services That Clinicians and Care Systems *Must* Assess the Need for and Recommend to Each Patient. These Have the Highest Priority Value (Level I)

Level I preventive services are worthy of attention at every opportunity. Busy clinicians cannot deliver this many services in any single encounter. However, with systems in place to track whether or not patients are up-to-date with the high-priority preventive services for their age group, clinicians can recommend the high-priority services as opportunities present.

Table: Level I Services by Age

Service	0-2 years	2-6 years	7-12 years	13-18 years
Childhood Immunization series See Annotation #1				
Chlamydia Screening (sexually active age 25 years and				Screen all sexually active women age 25 years and younger

younger)

Service	0-2 years	2-6 years	7-12 years	13-18 years
Neonatal Screening	Screen for hemoglobinopathies, phenylketonuria, hypothyroidism in the first week of life.			

Childhood Immunizations Series (Level I)
Recommendation:

> Clinicians must recommend immunizations for infants, children and adolescents for age-appropriate vaccines *[Strong Recommendation]*.

For recommended immunization schedule for persons Aged 0 through 18 Years go to http://www.cdc.gov/vaccines/schedules/hcp/index.html .

Counseling Messages

Educate parents to immunize children according to age-appropriate schedule.

Chlamydia Screening (Sexually Active Age 25 Years and Younger) (Level I)
Recommendation:

> Chlamydia infection screening must be offered to all sexually active women aged 25 years and younger *[Strong Recommendation, High Quality Evidence]* (Meyers, Halvorson, & Luckhaupt, 2007; Johnson et al., 2002).

There is no evidence regarding optimal frequency of screening, but yearly testing is reasonable (work group consensus).

Refer to the original guideline document for information on burden of suffering.

Evidence for Effectiveness

The sensitivity of available screening tests for chlamydia infection is 80% and higher *[Systematic Review]*. The U.S. Preventive Services Task Force does not recommend a specific screening test as studies have generally been performed in ideal circumstances in small populations with high prevalence rates. However, they concluded that nucleic acid amplification tests had higher sensitivities and specificities than older antigen detection tests and better sensitivities than culture *[High Quality Evidence]*. Following detection, treatment with antibiotics approaches 100% efficacy. Two randomized studies have observed a decrease in pelvic inflammatory disease following chlamydia screening *[Low Quality Evidence]*, *[High Quality Evidence]*.

Neonatal Screening (Level I)
Recommendation:

> Screening in the first week of life for conditions that are initially asymptomatic but that result in serious health issues in the first month of life must be recommended for hemoglobinopathies (Lin & Barton, 2007 *[Low Quality Evidence*]), phenylketonuria (Mabry-Hernandez, Wolff, & Green, 2008 *[Low Quality Evidence]*), and hypothyroidism (Meyers, Halvorson, & Luckhaupt *[Systematic Review]*) and other conditions according to state law *[Strong Recommendation]*.

Evidence for Effectiveness

Newborn screening for metabolic and other disorders is designed to detect infants with serious health conditions that are initially asymptomatic like inborn errors of metabolism and hypothyroidism. Early identification in many cases can avert a poor outcome for a child with various interventions, depending on the condition. There is strong evidence to support screening for hemoglobinopathies *[Low Quality Evidence]*, phenylketonuria *[Low Quality Evidence]*, and hypothyroidism *[Systematic Review]*. Approximately 4,000 infants per year are identified with a condition through the newborn metabolic screening program. Each state varies on the test required to be done by law, but a uniform approach with all states using mass spectrometry is being promoted by various national groups (http://www.mchb.hrsa.gov/screening). There is fair evidence that false-positive results are not a burden for parents *[Low Quality Evidence]*.

There is fair evidence that screening appears to be cost effective *[Cost-Effective Analysis]*.

Shared Decision-making and Implementation

Counseling messages for effective shared decision-making: All infants should receive a newborn metabolic screening test prior to hospital discharge, ideally when greater than 24 hours of age. Infants who receive screening before 24 hours of age should receive a repeat test before the second week of life.

System alerts should provide notice of positive results. Appropriate follow-up services must be provided for any child with a positive test.

Preventive Services That Clinicians and Care Systems *Should* Assess the Need for and Recommend to Each Patient. These Have Value but Less than Those in Level I (Level II)

Level II services have been shown to be effective and should be provided whenever possible. If systems/care management teams are successful in keeping patients on time with high-priority services during illness and disease management visits, preventive services in the second group can be delivered.

Breastfeeding Counseling (Level II)
Recommendation:

Promotion and support of breastfeeding should be recommended *[Strong Recommendation, Low Quality Evidence]* (U.S. Preventive Services Task Force, 2008).

Evidence for Effectiveness

Breastfeeding promotion interventions have resulted in significantly increased rates of short-term (one to three months) and long-term (six to eight months) exclusive breastfeeding. Additionally, combined pre- and postnatal breastfeeding interventions have a larger effect on breastfeeding durations than either alone. Lay support (peer support or peer counseling) has shown to increase short-term breastfeeding rates *[Low Quality Evidence]*.

Breastfeeding has been shown to decrease the number of ear and gastrointestinal infections. The incidence of asthma, type 2 diabetes and obesity has also been shown to decrease with breastfeeding *[Low Quality Evidence]*. In the first study to look at the duration of breastfeeding and child maltreatment, the results found the odds ratio for maternal maltreatment decreases as breastfeeding duration increases *[Moderate Quality Evidence]*.

Shared Decision-making and Implementation

Counseling Messages for Effective Shared Decision-making:

<u>Birth-2 years</u>

<u>Encourage</u>:

Breastfeeding exclusively for the first six months, and up to one year
Supplementing breastfed infants with iron no later than age six months with iron-fortified cereals
Supplementing for breastfeeding with 400 IU/day vitamin D within two months for infants *[Low Quality Evidence]*
Pacifier use has not been shown to affect breastfeeding duration or exclusivity *[Systematic Review]*

Circumcision Counseling (Level II)
Recommendation:

Clinicians should routinely present unbiased information to parents and families regarding the potential risks and benefits of circumcision, in a process of shared decision-making.
While not uniformly recommended, there is evidence that the benefits of infant male

circumcision are sufficient to justify health care access and third-party payment to all families desiring the procedure for their infant.

Often, the decision to have an infant circumcised goes beyond strictly medical considerations, and often reflects religious, cultural or other beliefs, values and preferences *[Strong Recommendation]*.

Evidence for Effectiveness

Male circumcision may offer protection from infections throughout the life course including urinary tract infections in infants and sexually transmitted infections in adults. In infants, the procedure has a low rate of mild to moderate complications.

According to the American Academy of Pediatrics (AAP) Consensus Statement on circumcision *[Low Quality Evidence]*, the existing medical evidence demonstrates potential medical benefits of newborn male circumcision, which outweigh risk associated with the procedure. However, data is not sufficient to recommend routine neonatal circumcision. They conclude that parents should be given unbiased and accurate information in order to make an informed choice. The potential benefits of circumcision include 1) decreased risk of urinary tract infections in infants *[Low Quality Evidence]*; 2) decreased risk of sexually transmitted diseases including human immunodeficiency virus (HIV), human papillomavirus (HPV) and herpes simplex virus (HSV)-2 in adults *[High Quality Evidence]*, *[Meta-analysis]*); and 3) potential lower risk of penile cancer in adults. The potential risks include 1) bleeding, 2) infection, 3) trauma/injury to the penis, and 4) suboptimal cosmetic result. Complications of circumcision are considerably less when the procedure is performed in the newborn period. Severe complications following circumcision are rare *[Systematic Review]*. The American College of Obstetricians and Gynecologists endorses the AAP Policy Statement, as well.

While there has been no universal consensus regarding infant male circumcision, the World Health Organization (WHO) has made recommendations that emphasize circumcision as an intervention in HIV prevention (http://www.who.int).

Counseling messages for effective shared-decision making: Clinicians should present unbiased information to parents regarding the potential risks and benefits of circumcision.

Depression Screening (Level II)
Recommendation:

Clinicians and health care systems should try to consistently screen adolescents ages 12 to 18 for major depressive disorder, but only when systems are in place in their organization to ensure accurate diagnosis, careful selection of treatment, and close follow-up *[Strong Recommendation]*.

There is insufficient evidence to recommend screening for depression in children ages 7 to 11.

There is no evidence about the optimal frequency of screening for any age group *[Low Quality Evidence]*.

Evidence for Effectiveness

The systems needed to provide evidence-based, more effective depression care include evaluation, registry, close follow-up with regular severity score assessment, tracking, treatment intensification, care manager, pre-arranged routine psychiatry consultation, and relapse prevention counseling. Unless these systems are functioning well, benefits from screening are unlikely to be realized.

Potential Harms to Screening

There is adequate evidence that treating adolescents with selective serotonin reuptake inhibitors (SSRIs) (especially fluoxetine and citalopram), psychotherapy (cognitive-behavioral or interpersonal) and combined therapy decreases major depressive disorder symptoms more than in control subjects. There are at least 18 fair or good-quality randomized controlled trials demonstrating efficacy

[Systematic Review]. However, nearly all of these trials have taken place outside a primary care setting, so an assumption is that the very good evidence for efficacy in primary care in adults should apply to adolescents *[Systematic Review]*. There is inadequate evidence about harms from screening or psychotherapy, but there is convincing evidence for a small risk of increased suicidality from antidepressant treatments and an increased risk of conversion from a unipolar depressive disorder to a bipolar disorder. The U.S. Preventive Services Task Force meta-analysis of evidence from nine good-quality randomized control trials found an absolute risk of suicide-related adverse events (suicidal ideation, suicide attempts or preparatory actions for imminent suicide) of about 1% greater than in controls. However, no suicidal deaths occurred among the 2,000 adolescents involved in these trials *[Systematic Review]*. The U.S. Preventive Services Task Force concluded that because of this risk, SSRIs in adolescents "should only be considered if judicious clinical monitoring is possible" *[Low Quality Evidence]*.

Shared Decision-making and Implementation

Counseling messages for effective shared decision-making: There is no evidence that simple, brief messages have any effect.

Implementation: The Patient Health Questionnaire-9 Modified for Adolescents (PHQ-9M) has been validated for diagnosis and screening, as well as tracking depression severity over time, in adolescents ages 12 to 18 *[Low Quality Evidence]*.

Related Guidelines

See the NGC summary of the ICSI guideline Adult Depression in Primary Care.

See the "Implementation Tools and Resources Table" section of the original guideline document for examples of screening instruments.

Folic Acid Chemoprophylaxis Counseling (Level II)
Recommendation:

> Clinicians should offer to counsel women of reproductive age to consume 400 to 800 micrograms of folic acid per day from food sources and/or supplements *[Strong Recommendation, Low Quality Evidence]* (Wolff et al., 2009).

Evidence for Effectiveness

Neural tube defects are common birth defects that affect approximately 3,000 pregnancies each year *[Low Quality Evidence]*. The occurrence of neural tube defects is reduced by 50% to 70% with the daily periconceptional consumption of 400 to 800 micrograms of folic acid *[Guideline]*. Not all women receive adequate levels of folic acid in their diets, and the 2005 March of Dimes Gallup survey indicated the number taking daily supplements is declining. When asked what would motivate them to take a supplement, the most common reported needs were being sick or a clinician's recommendation *[Low Quality Evidence]*.

Shared Decision-making and Implementation

Counseling messages for effective shared decision-making:

> Eat folic acid-rich foods and fortified foods such as dark green leafy vegetables; dried beans and peas; whole grain, fortified enriched grain products and breakfast cereals; and citrus fruits and berries.
>
> Take a vitamin supplement containing folic acid.

Related Guideline

See the NGC summary of the ICSI guideline Routine prenatal care.

Hearing Screening (Level II)
Recommendation:

> Universal screening of infants for congenital hearing loss should be recommended before one month of age *[Strong Recommendation]* (Nelson, Bougatsos, & Nygren, 2008 *[Systematic Review]*).

Evidence for Effectiveness

There is good evidence to recommend newborn hearing screening by otoacoustic emissions and/or auditory brainstem response prior to one month of age *[Systematic Review]*. Screening for asymptomatic hearing impairment beyond age three is not recommended, although thorough follow-up should be provided for potential cases identified by symptoms or through school-based screening programs *[Systematic Review]*.

The U.S. Preventive Services Task Force found good evidence to recommend universal newborn hearing screening. The testing methodology of a one- or two-step validated protocol showed high sensitivity (0.92) and specificity (0.98) for the two-step protocol (otoacoustic emissions followed by auditory brainstem response for those who failed otoacoustic emissions) *[Low Quality Evidence]*. Screening also improves outcomes *[Low Quality Evidence]*. Harms of screening in this age group were felt to be minimal.

After age three, undetected hearing problems are rare, and the majority of cases can be identified by thorough examination of children with otitis media with effusion. There is insufficient evidence on the effectiveness of early detection in asymptomatic children *[Systematic Review]*.

Human Immunodeficiency Virus (HIV) Screening (Level II)
Recommendation:

> HIV infection screening should be recommended for adolescents and adults ages 15 to 64 *[Strong Recommendation]*.

HIV infection screening should be recommended earlier than age 15 for adolescents at high risk of infection *[Strong Recommendation]*.

There is insufficient evidence to recommend a specific frequency, although screening annually for high-risk individuals and every 3 to 5 years for low-risk individuals seems reasonable (work group consensus). HIV screening should be recommended for all women with every pregnancy *[Strong Recommendation]*.

Evidence for Effectiveness

The Centers for Disease Control and Prevention (CDC) estimates that 1.2 million individuals in the United States are living with HIV. On average, 50,000 new cases are confirmed each year, and 50% of newly acquired sexually transmitted infections occur in adolescents and young adults.

Because it is difficult to reliably identify patients with HIV risk factors, targeted screening misses a significant percentage of the population that may be infected. Statistics indicate that 20% to 25% of individuals are unaware of their HIV status.

Confirmation of disease and early initiation of treatment significantly decreases burden of the disease, risk of mortality and further disease transmission. Testing methods, including rapid HIV testing and standard serum testing, are >99% sensitive and specific.

The CDC has recommended universal "opt-out" HIV screening in patients ages 13 to 64 since 2006 *[Low Quality Evidence]*. More recently, the USPSTF made similar recommendations for adolescents and adults ages 15 to 65, with earlier screening if risk factors are present. While screening may provide only minimal benefit to individual low-risk persons, any harms of testing are also minimal, and, more importantly, the public health benefit of widespread screening, for the population as a whole, is significant *[Systematic Review]*.

There is still insufficient evidence to recommend a specific testing interval, but annual testing for higher risk patients, and every 3 to 5 years for lower risk patients, seems reasonable. All women should be tested with every pregnancy.

Infant Sleep Positioning and Sudden Infant Death Syndrome (SIDS) Counseling (Level II)
Recommendation:

> Clinicians should ask about the child's sleep environment. Inform parents of importance of back-sleeping position. Demonstrate the appropriate sleeping position when the patient is under medical care.

Refer to the original guideline document for information on evidence for effectiveness of SIDS counseling and burden of suffering.

Shared Decision-making and Implementation

Counseling messages for effective shared-decision making: Infants should be placed on their back for sleep. Side sleeping is no longer recognized as an alternative position.

Sleep position education should start in the newborn nursery. Health care workers should be careful to place babies on their back to demonstrate to parents the appropriate sleeping position. Continued work to educate all potential caregivers of infants should be supported.

Infant sleep surfaces should be firm, and there should be no loose bedding or soft objects around the infant.

Improved room ventilation by use of a fan may be an effective intervention for decreasing SIDS *[Low Quality Evidence]*.

Parents should be encouraged not to smoke, as a no-smoking environment has many important health benefits. Smoking during pregnancy has been shown to be associated with increased risk of SIDS *[Guideline]*.

Approximate but separate sleeping environment and the use of pacifiers have been recommended *[Guideline]*.

Exclusive breastfeeding may decrease the risk of SIDS, and given all of its other health benefits, should be strongly encouraged *[Systematic Review]*.

Motor Vehicle Safety Screening and Counseling (Level II)
Recommendation:

> Clinicians should assess use of the following:
>
> - Car seats, booster seats, and seat belts in the family
> - Helmet use in recreational activities *[Strong Recommendation]*

Refer to the original guideline document for information on the evidence for effectiveness of counseling and burden of suffering from motor vehicle injuries.

Shared Decision-making and Implementation

Counseling Messages for Effective Shared Decision-making:

Age Group: Birth to 9 Years

> Install and use federally approved child safety seats.
> Provide resources on using car seats appropriately, such as advising the patient to have a demonstration or check of proper seat installation.
> All infants and toddlers should ride in a rear-facing car safety seat until they are age two or until they have met the maximum height or weight allowed by the car seat manufacturer *[Guideline]*.
> All children two years of age and older or those younger who have met the maximum height and weight requirements by their car seat manufacturer, should use a forward-facing car seat with a harness until the highest weight and height allowed by the manufacturer have been met *[Guideline]*.

Children ages 12 years and younger should not be placed in any seat with an air bag. (Best: middle rear seat.)
Children who have outgrown their forward-facing car safety seat should use a belt positioning booster until the vehicle lap and shoulder belt fit properly.
It is recommended that children should be in a belt positioning booster until they have reached a height of four feet nine inches, approximately 8 to 12 years of age *[Guideline]*. Refer to local state laws.

All Individuals, Including Older Children and Drivers of Motor-Vehicles with Child Passengers

Discuss always wearing a safety belt when driving or riding in a car.
Discuss the fact that 50% of death and disability from motor vehicle accidents can be prevented when passengers wear seat belts.
Discuss the importance of properly installing child safety seats.
Do not drive or ride in a motor vehicle when the driver is under the influence of alcohol or drugs.
Discuss the fact that passengers should not ride in cargo areas of any vehicle.
Discuss that car seat restraints were not designed to be fastened over heavy winter clothing, but over indoor clothing.
The safest way to travel is to ensure that EVERYONE in the vehicle is correctly buckled up and that all children under age 13 ride in the back seat.
Front passenger seats should be moved as far back as possible.
Motorcycle riders should always wear helmets to reduce the risk of head injury.
Discuss avoiding distractions while driving including use of cell phones and other handheld devices and conversations with passengers.

Obesity Screening (Level II)
Recommendations:

Body mass index (BMI) should be calculated and documented in the medical record on all children ages 2 to 18 at least annually *[Strong Recommendation, High Quality Evidence]* (Barlow & Expert Committee, 2007).
CDC growth charts should be used for children ages 2-18; WHO growth curves should be used from birth through 23 months of age *[Strong Recommendation, High Quality Evidence]* (Barlow & Expert Committee, 2007).
Appropriate terminology should be used to classify pediatric overweight and obesity *[Strong Recommendation, High Quality Evidence]* (Barlow & Expert Committee, 2007).
An assessment of diet, physical activity and sedentary behaviors should be done annually. This assessment should be used to target appropriate messages to each family *[Strong Recommendation, High Quality Evidence]* (Barlow & Expert Committee, 2007).

Refer to the original guideline document for information on the evidence for effectiveness of obesity screening.

Shared Decision-making and Implementation

Counseling Messages for Effective Shared Decision-making:

Clinicians should counsel children and families to:

Limit their child's consumption of sugar-sweetened beverages
Eat a diet with the recommended quantities of fruits and vegetables
Eat breakfast daily
Eat meals together as much as possible
Limit eating out, especially eating at fast food restaurants
Adjust portion sizes appropriately for age
Avoid television for children under the age of two
Limit television and "screen time" to less than two hours per day

[Strong Recommendation, High Quality Evidence]

Counseling messages for healthy lifestyles: The 5210 toolkit is a nationally recognized weight management strategy aimed specifically at childhood obesity. It is widely endorsed by the American Academy of Pediatrics and can be used for primary care-based weight management goal setting. Used in combination with motivational interviewing, 5210 principles have been shown to be an effective foundation in sustainable behavior change. 5210 daily health habit goals include:

- Five or more fruits and vegetables
- Two hours or less recreational screen time
- One hour or more of physical activity
- Zero sugary drinks, more water and only low-fat milk

Oral Health Counseling and Treatments (Level II)
Recommendation:

- Fluoride should be recommended to prevent caries and cavities. A "smear" of fluoridated toothpaste should be recommended for children less than two years of age. A "pea-size" amount of toothpaste should be recommended for children ages two through five years. Rinsing after brushing should be kept to a minimum or eliminated altogether *[Strong Recommendation, Guideline]* (American Academy of Pediatric Dentistry, 2012).

Risk assessment including oral screening and referral for dental care should be recommended for those at high risk.

Counseling on oral health preventive measures should be recommended.

Refer to the original guideline document for information on evidence for effectiveness of oral health counseling and treatment.

Shared Decision-making and Implementation

Counseling Messages for Effective Shared Decision-making:

Birth to 2 years

- Do not use fluoridated toothpaste under one year of age.
- Use fluoride varnish for patients at high risk of cavities if mechanisms to successfully and consistently deliver this in the clinic setting are available. Access Web-based or in-person training to acquire knowledge and skills.
- Discourage the practice of putting infants and children to bed with a bottle.
- Encourage women to breastfeed.
- Encourage healthy eating habits to reduce the risk of dental caries. In particular, avoidance of frequent sugar intake.
- Encourage regular dental visits. Children at high risk for dental caries should be referred to the appropriate dental clinician.

2 to 18 years

- Parents should be advised to have children brush teeth daily with toothpaste containing 1,000 to 1,500 ppm of fluoride. Use a pea-sized amount of fluoride toothpaste for children over 2 years of age.
- Consider fluoride varnish for patients at high risk of cavities if mechanisms to successfully and consistently deliver this in the clinic setting are available.
- Provide daily fluoride supplements of 1 mg of fluoride for those patients over 6 years of age who do not have fluoride in their water supply already.
- Encourage regular dental visits.
- Consider daily flossing.
- Children at high risk for dental caries should be referred to the appropriate health care source.
- Encourage healthy eating habits to reduce the risk of dental caries. In particular, avoidance of frequent sugar intake.

Professional medical associations (American Academy of Pediatrics and American Academy of Family

Clinicians) and professional dental associations (American Academy of Pediatric Dentistry, American Academy of Public Health Dentistry and American Dental Association) provide educational programs for clinicians or other support through tools to assess risk of caries.

Tobacco Use Screening, Prevention, and Intervention in Adolescents (Level II)
Recommendation:

> Clinicians should establish tobacco use status for all patients and reassess at every opportunity (see Annotation #30, "Secondhand Smoke Exposure Counseling [Level III]," in the original guideline document). All forms of tobacco should be included in this assessment. Clinicians should recommend ongoing cessation services to all tobacco users at every opportunity and reinforce non-users to continue avoiding tobacco products *[Strong Recommendation]*, (U.S. Preventive Services Task Force, 2009 *[Systematic Review]*; Fiore & Jaén, 2008 *[Low Quality Evidence]*).

Evidence for Effectiveness

Tobacco use is the single most preventable cause of death and disease in our society. There is some evidence that that school-based programs and family intervention programs may help prevent smoking in children and adolescents *[Systematic Review]*. There is good evidence that tobacco cessation interventions are best carried out when the entire clinical staff is organized to provide these services *[Systematic Review]*, *[Low Quality Evidence]*.

Two treatment elements are effective for tobacco cessation intervention in adults: social support for cessation and skills training/problem-solving. The more intense the treatment, the more effective it is in achieving long-term abstinence from tobacco. Structured clinician clinical-based smoking cessation counseling is more effective than usual care in reducing smoking rates in adults *[High Quality Evidence]*.

Refer to the original guideline document for more information on the evidence for effectiveness of tobacco use screening, prevention, and intervention in adolescents.

Shared Decision-making and Implementation

Counseling Messages for Effective Shared Decision-making:

For children and adolescents using tobacco:

> Emphasize short-term negative effects of tobacco use.
> Advise tobacco users to quit.
> Assess user's willingness to make a quit attempt.
> Provide a motivational intervention if the user is not ready to make a quit effort *[Low Quality Evidence]*.
> Assist in quitting if ready to make a quit effort. Negotiate a quit date. Counsel to support cessation and build abstinence skills. Offer phone line for more assistance.
> Arrange follow-up to occur soon after the quit date.
> Provide educational and self-help materials for all patients and families.
> Support school and family based programs to help prevent smoking.

Vision Impairment Screening (Level II)
Recommendation:

> Vision screening should be recommended for all children three to five years of age. Screening should be used to detect amblyopia, strabismus, and defects in visual acuity *[Strong Recommendation]* (Chou, Dana &, Bougatsos, 2011 *[Systematic Review]*; Research Triangle Institute et al., 2004 *[Systematic Review]*).

Vision screening could be recommended for children under the age of three *[Weak Recommendation]*.

Evidence for Effectiveness

The U.S. Preventive Services Task Force concluded that there is adequate evidence that early treatment for amblyopia, including the use of cycloplegic agents, patching, and eyeglasses for children three to five years of age leads to improved visual outcomes. The effectiveness of screening in preschool children is supported by indirect evidence that screening is effective in identifying strabismus and amblyopia, treatment of strabismus and amblyopia is effective, and more intensive screening leads to improved visual acuity compared to usual screening *[Systematic Review]*.

The U.S. Preventive Services Task Force found inadequate evidence that early treatment of amblyopia for children under the age of three years leads to improved visual outcomes.

A single randomized control trial demonstrated that children randomized to more intensive screening between 8 and 37 months of age had a lower prevalence of severe amblyopia, and at 7.5 years of age, lower prevalence of amblyopia after treatment *[Moderate Quality Evidence]*.

Refer to the original guideline document for more information on the evidence for effectiveness of vision impairment screening.

Shared Decision-making and Implementation

Counseling messages for effective shared decision-making: Normal objective vision screening performed at schools need not be repeated by clinics for average-risk, asymptomatic children *[Moderate Quality Evidence]*.

Preventive Services for Which the Evidence Is Currently Incomplete and/or High Burden of Disease and Low Cost of Delivering Care. Providing These Services Is Left to the Judgment of Individual Medical Groups, Clinicians, and Their Patients (Level III)

Level III services either have insufficient evidence to prove their effectiveness and/or have important harms. For these preventive services in particular, decisions about recommending the service should be made based on shared decision making. It is important to remember that insufficient evidence does not mean the service is not effective, but rather that the current literature is not sufficient to say whether or not the service is effective.

Refer to the original guideline document for information on Level III services including:

Alcohol use screening and counseling
Blood lead screening
Developmental/behavioral assessment screening
Domestic violence and abuse screening and counseling
Dyslipidemia screening
Dysplasia of the hip screening
Household and recreational injury prevention screening
Hyperbilirubinemia screening
Infectious disease prevention counseling
Iron deficiency screening
Nutritional counseling
Preconception counseling
Pregnancy prevention counseling
Scoliosis screening
Secondhand smoke exposure counseling
Sexually transmitted infection counseling
Skin cancer screening and counseling
Undescended testicle screening

Preventive Services That Are Not Supported by Evidence and Not Recommended (Level IV)

Level IV services are those with low predictive value and/or uncertain beneficial action for true positives. They may also be a combination of insufficient evidence, potential for harm in treatment, no defined

benefit and/or overuse.

- Blood chemistry screening
- Cervical cancer screening
- Child maltreatment screening
- Hemoglobin (for anemia screening ages five years and older)
- Tuberculin screening (for average risk)
- Urinalysis

Definitions:

Quality of Evidence and Strength of Recommendations

Category	Quality Definitions	Strong Recommendation	Weak Recommendation
High Quality Evidence	Further research is very unlikely to change confidence in the estimate of effect.	The work group is confident that the desirable effects of adhering to this recommendation outweigh the undesirable effects. This is a strong recommendation for or against. This applies to most patients.	The work group recognizes that the evidence, though of high quality, shows a balance between estimates of harms and benefits. The best action will depend on local circumstances, patient values or preferences.
Moderate Quality Evidence	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate.	The work group is confident that the benefits outweigh the risks, but recognizes that the evidence has limitations. Further evidence may impact this recommendation. This is a recommendation that likely applies to most patients.	The work group recognizes that there is a balance between harms and benefit, based on moderate quality evidence, or that there is uncertainty about the estimates of the harms and benefits of the proposed intervention that may be affected by new evidence. Alternative approaches will likely be better for some patients under some circumstances.
Low Quality Evidence	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change. The estimate or any estimate of effect is very uncertain.	The work group feels that the evidence consistently indicates the benefit of this action outweighs the harms. This recommendation might change when higher quality evidence becomes available.	The work group recognizes that there is significant uncertainty about the best estimates of benefits and harms.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Preventable diseases or conditions such as:

- Infectious childhood diseases (e.g., diphtheria, tetanus, pertussis, poliomyelitis, measles, mumps, rubella)

Chlamydia infection
Neonatal disorders (i.e., hemoglobinopathies, phenylketonuria, hypothyroidism)
Depression
Folic acid deficiency
Hearing loss
Human immunodeficiency virus (HIV)
Sudden infant death syndrome (SIDS)
Injuries due to motor vehicles
Obesity
Dental and periodontal disease (oral health)
Tobacco use
Vision loss or impairment

Guideline Category

Counseling

Evaluation

Prevention

Risk Assessment

Screening

Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

Pediatrics

Preventive Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Health Plans

Hospitals

Managed Care Organizations

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To provide a comprehensive approach to the provision of evidence-based preventive services including screening maneuvers, immunizations, and counseling, and to assist in the prioritization of these preventive services
- To increase the rate of pediatric patients up-to-date with Level I preventive services

Note: This guideline is not intended to diagnose or treat any condition; if a health issue or condition is found or suspected, or a screening maneuver is abnormal, other guidelines address the details of subsequent evaluation, testing, and management.

Target Population

Average-risk, asymptomatic children and adolescents under age 18

Note: In general, this guideline does not apply to pregnant women, individuals with chronic disorders, or high-risk populations; certain exceptions are noted.

Interventions and Practices Considered

Preventive Services That Must Be Delivered

Childhood immunization series
Chlamydia screening (sexually active age 25 years and younger)
Neonatal screening

Preventive Services That Should Be Delivered

Breastfeeding counseling
Circumcision counseling
Depression screening
Folic acid chemoprophylaxis counseling
Hearing screening
Human immunodeficiency virus (HIV) screening
Infant sleep positioning and sudden infant death syndrome (SIDS) counseling
Motor vehicle safety screening and counseling
Obesity screening
Oral health counseling and treatments
Tobacco use screening, prevention and intervention in adolescents
Vision impairment screening

Preventive Services Left to the Judgment of Individual Medical Groups, Clinicians, and Their Patients

Alcohol use screening and counseling
Blood lead screening
Developmental/behavioral assessment screening
Domestic violence and abuse screening and counseling
Dyslipidemia screening
Dysplasia of the hip screening
Household and recreational injury prevention screening
Hyperbilirubinemia screening
Infectious disease prevention counseling
Iron deficiency screening
Nutritional counseling
Preconception counseling
Pregnancy prevention counseling
Scoliosis screening
Secondhand smoke exposure counseling

Sexually transmitted infection counseling
Skin cancer screening and counseling
Undescended testicle screening

Major Outcomes Considered

- Effectiveness of preventive screening
- Effectiveness of preventive counseling and education
- Effectiveness of immunizations
- Sensitivity and specificity of screening tests

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A consistent and defined process is used for literature search and review for the development and revision of Institute for Clinical Systems Improvement (ICSI) guidelines. The PubMed database was utilized and the literature search was divided into two stages to identify systematic reviews (stage I), and randomized controlled trials, meta-analyses and other literature (stage II). Literature search terms used for this revision are below and include literature from October 2010 through April 2012. Search terms included vitamin D, circumcision, dyslipidemia and prevention.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Quality of Evidence and Strength of Recommendations

Category	Quality Definitions	Strong Recommendation	Weak Recommendation
High Quality Evidence	Further research is very unlikely to change confidence in the estimate of effect.	The work group is confident that the desirable effects of adhering to this recommendation outweigh the undesirable effects. This is a strong recommendation for or against. This applies to most patients.	The work group recognizes that the evidence, though of high quality, shows a balance between estimates of harms and benefits. The best action will depend on local circumstances, patient values or preferences.
Moderate	Further research is	The work group is	The work group recognizes that there is

Category	Quality Definitions	Strong Recommendation	Weak Recommendation
Quality Evidence	likely to have an important impact on confidence in the estimate of effect and may change the estimate.	confident that the benefits outweigh the risks, but recognizes that the evidence has limitations. Further evidence may impact this recommendation. This is a recommendation that likely applies to most patients.	a balance between harms and benefit, based on moderate quality evidence, or that there is uncertainty about the estimates of the harms and benefits of the proposed intervention that may be affected by new evidence. Alternative approaches will likely be better for some patients under some circumstances.
Low Quality Evidence	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change. The estimate or any estimate of effect is very uncertain.	The work group feels that the evidence consistently indicates the benefit of this action outweighs the harms. This recommendation might change when higher quality evidence becomes available.	The work group recognizes that there is significant uncertainty about the best estimates of benefits and harms.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

New Guideline Development Process

A work group consisting of 6 to 12 members that includes physicians, nurses, pharmacists, other healthcare professionals relevant to the topic, and an Institute for Clinical Systems Improvement (ICSI) staff facilitator develops each document. Ordinarily, one of the physicians will be the leader. Most work group members are recruited from ICSI member organizations, but if there is expertise not represented by ICSI members, 1 or 2 work group members may be recruited from medical groups, hospitals or other organizations that are not members of ICSI. Patients on occasion are invited to serve on work groups.

The work group will meet for 7 to 8 three-hour meetings to develop the guideline. A literature search and review is performed and the work group members, under the coordination of the ICSI staff facilitator, develop the algorithm and write the annotations and literature citations.

Once the final draft copy of the guideline is developed, the guideline goes to the ICSI members for critical review.

Revision Process of Existing Guidelines

ICSI scientific documents are revised every 12 to 24 months as indicated by changes in clinical practice and literature. For documents that are revised on a 24-month schedule, ICSI checks with the work group on an annual basis to determine if there have been changes in the literature significant enough to cause

the document to be revised earlier or later than scheduled. For yearly reviewed documents, ICSI checks with every work group 6 months before the scheduled revision to determine if there have been changes in the literature significant enough to cause the document to be revised earlier than scheduled.

Literature Search

ICSI staff, working with the work group to identify any new pertinent clinical trials, systematic reviews, or regulatory statements and other professional guidelines, conduct a literature search.

Revision

The work group will meet for 1 to 2 three-hour meetings to review the literature, respond to member organization comments, and revise the document as appropriate.

A second review by members is indicated if there are changes or additions to the document that would be unfamiliar or unacceptable to member organizations. If a review by members is not needed, the document goes to the appropriate steering committee for approval according to the criteria outlined in the "Description of Method of Guideline Validation" field.

Rating Scheme for the Strength of the Recommendations

See the "Rating Scheme for the Strength of the Evidence" field.

Cost Analysis

The guideline developers reviewed published cost analyses.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Critical Review Process

The purpose of critical review is to provide an opportunity for the clinicians in the member groups to review the science behind the recommendations and focus on the content of the guideline. Critical review also provides an opportunity for clinicians in each group to come to consensus on feedback they wish to give the work group and to consider changes necessary across systems in their organization to implement the guideline.

All member organizations are expected to respond to critical review guidelines. Critical review of guidelines is a criterion for continued membership within Institute for Clinical Systems Improvement (ICSI).

After the critical review period, the guideline work group reconvenes to review the comments and make changes, as appropriate. The work group prepares a written response to all comments.

Document Approval

Each document is approved by the Committee for Evidence-Based Practice (CEBP).

The committee will review and approve each guideline/protocol, based on the following criteria:

The aim(s) of the document is clearly and specifically described.
The need for and importance of the document is clearly stated.

The work group included individuals from all relevant professional groups and had the needed expertise.
Patient views and preferences were sought and included.
The work group has responded to all feedback and criticisms reasonably.
Potential conflicts of interest were disclosed and do not detract from the quality of the document.
Systematic methods were used to search for the evidence to assure completeness and currency.
Health benefits, side effects, risks and patient preferences have been considered in formulating recommendations.
The link between the recommendation and supporting evidence is clear.
Where the evidence has not been well established, recommendations based on community practice or expert opinion are clearly identified.
Recommendations are specific and unambiguous.
Different options for clinical management are clearly presented.
Clinical highlights and recommendations are easily identifiable.
Implementation recommendations identify key strategies for *health care systems* to support implementation of the document.
The document is supported with practical and useful tools to ease *clinician* implementation.
Where local resource availability may vary, alternative recommendations are clear.
Suggested measures are clear and useful for quality/process improvement efforts.

Once the document has been approved, it is posted on the ICSI Web site and released to members for use.

Evidence Supporting the Recommendations

References Supporting the Recommendations

American Academy of Pediatric Dentistry. Guideline on fluoride therapy. Pediatr Dent. 2012 Sep-Oct;34(5):166-9. PubMed

Barlow SE, Expert Committee. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report. Pediatrics. 2007 Dec;120(Suppl):S164-92. PubMed

Chou R, Dana T, Bougatsos C. Screening for visual impairment in children ages 1-5 years: update for the USPSTF. Pediatrics. 2011 Feb;127(2):e442-79. PubMed

Fiore MC, Jaen CR. A clinical blueprint to accelerate the elimination of tobacco use. JAMA. 2008 May 7;299(17):2083-5. PubMed

Johnson RE, Newhall WJ, Papp JR, Knapp JS, Black CM, Gift TL, Steece R, Markowitz LE, Devine OJ, Walsh CM, Wang S, Gunter DC, Irwin KL, DeLisle S, Berman SM. Screening tests to detect Chlamydia trachomatis and Neisseria gonorrhoeae infections--2002. MMWR Recomm Rep. 2002 Oct 18;51(RR-15):1-38. [160 references] PubMed

Meyers DS, Halvorson H, Luckhaupt S, U.S. Preventive Services Task Force. Screening for chlamydial infection: an evidence update for the U.S. Preventive Services Task Force. Ann Intern Med. 2007 Jul 17;147(2):135-42. [25 references] PubMed

Nelson HD, Bougatsos C, Nygren P. Universal newborn hearing screening: systematic review to update the 2001 U.S. Preventive Services Task Force recommendation. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Jul. (Evidence synthesis; no. 62).

Research Triangle Institute. Kemper A, Harris R, Lieu TA, Homer CJ, Whitener L. Screening for visual impairment in children younger than 5 years: systematic evidence review for the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality; 2004 May. 37 p. (Systematic evidence review; no. 27). [61 references]

U.S. Preventive Services Task Force. Counseling and interventions to prevent tobacco use and tobacco-caused disease in adults and pregnant women: U.S. Preventive Services Task Force reaffirmation recommendation statement. Ann Intern Med. 2009 Apr 21;150(8):551-5. [7 references] PubMed

U.S. Preventive Services Task Force. Primary care interventions to promote breastfeeding: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. 2008 Oct 21;149(8):560-4. [11 references] PubMed

Wolff T, Witkop CT, Miller T, Syed SB, U.S. Preventive Services Task Force. Folic acid supplementation for the prevention of neural tube defects: an update of the evidence for the U.S. Preventive Services Task Force. Ann Intern Med. 2009 May 5;150(9):632-9. [30 references] PubMed

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for selected recommendations (see the "Major Recommendations" field).

This guideline is a synthesis of recommendations from other Institute for Clinical Systems Improvement (ICSI) guidelines, primary evidence through literature reviews, recommendations from other organizations, particularly the U.S. Preventive Services Task Force, and work group consensus.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Improved use of a comprehensive approach to the provision of evidence-based preventive services including screening maneuvers, immunizations and counseling for average-risk, asymptomatic children, and adolescents as demonstrated by increased rate of pediatric patients up-to-date with Level I preventive services

Potential Harms

- There is convincing evidence for a small risk of increased suicidality from antidepressant treatments and an increased risk of conversion from a unipolar depressive disorder to a bipolar disorder.
- The main potential complication of fluoride use is fluorosis.
- Harms and adverse effects such as dietary neurosis, family conflict and cardiovascular disease (CVD) anxiety are possible adverse effects of screening, and studies that address acceptability of lipid testing in children find the majority of families do not comply.

Qualifying Statements

Qualifying Statements

- The information contained in this Institute for Clinical Systems Improvement (ICSI) Health Care

Guideline is intended primarily for health professionals and other expert audiences.

- This ICSI Health Care Guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients and families are urged to consult a health care professional regarding their own situation and any specific medical questions they may have. In addition, they should seek assistance from a health care professional in interpreting this ICSI Health Care Guideline and applying it in their individual case.
- This ICSI Health Care Guideline is designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and is not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition.
- This guideline is not intended to diagnose or treat any condition; if a health issue or condition is found or suspected, or a screening maneuver is abnormal, other guidelines (such as the "Prevention and Management of Obesity [Mature Adolescent and Adults]" guideline) address the details of subsequent evaluation, testing, and management.
- This guideline is intended to be used primarily by health care organizations to design systems of care for the reliable delivery of preventive services to populations of patients. The various tests included in this guideline are discussed only in the context of screening asymptomatic individuals and the early detection of certain clinical conditions; the work group does not address the use of these tests in patients with symptoms, or for the ongoing management of these conditions.
- While there is good evidence that modifying certain behaviors has positive health benefits (unsafe sex, accidents and safety, nutrition, physical activity), there is minimal evidence at present that screening for these conditions or asking about them in the context of a risk assessment, even if followed by advice from a physician or other clinician, will result in a change in behavior or positive outcomes. Therefore, this guideline makes:
    - Minimal recommendations for risk assessment to drive counseling for what are largely lifestyle issues
    - Specific recommendation that risk assessment and counseling about lifestyle not be considered suitable parameters for systematic implementation measures
    - Counseling messages for those clinicians who want to provide such counseling or whose patients express an interest in receiving this information
- Most of the elements of the traditional physical examination are notably absent from these recommendations. The physical examination was originally developed and taught as a way to thoroughly evaluate the patient with a significant health problem or complaint, particularly in the hospital setting. It was not designed as a screening test for an asymptomatic person; in fact, it fails nearly all of the criteria for an effective screening test for an asymptomatic person identified by most authorities. As a diagnostic test, in response to specific complaints or symptoms, the physical exam remains of inestimable, if underutilized value. The only elements of the physical exam that have been sufficiently studied and are recommended by this guideline are height, weight and body mass index as part of obesity screening (Level II), vision screening (Level II) and hearing screening (Level II). There is incomplete evidence and/or high burden of disease and low cost of delivery care for Level III services, and these are left to the judgment of individual medical groups, clinicians and their patients. There is no evidence that cardiopulmonary, abdominal or neurologic exams, done as routine screening maneuvers in asymptomatic patients, will reliably detect occult disease of any type. The work group recognizes the real and intangible benefits, as well as parental expectations, inherent in examining a child or adolescent, but cautions against assuming that all patients expect or want a physical exam as a part of routine preventive services.
- There is insufficient evidence to recommend one schedule over another in terms of lowering mortality and morbidity; recognizing disability; promoting optimal growth and development; or helping patients achieve longer, more productive lives. Many services can be provided during routine visits. Similarly, an assessment of preventive services needs can be incorporated into any visit. The visit schedules recommended in these guidelines may augment a clinic's ability to assure provision of preventive services, but this may be unnecessary over time as effective clinic systems allow the services to be incorporated into other clinic visits.

Implementation of the Guideline

Description of Implementation Strategy

Once a guideline is approved for general implementation, a medical group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment, and tobacco cessation.

Implementation Recommendations

Prior to implementation, it is important to consider current organizational infrastructure that address the following:

- System and process design
- Training and education
- Culture and the need to shift values, beliefs and behaviors of the organization

The following system changes were identified by the guideline work group as key strategies for health care systems to incorporate in support of the implementation of this guideline.

- Prioritization and implementation of preventive services should be part of the overall system and should include the following:
  - Practice preventive services at every clinic opportunity while addressing high-priority services.
  - Individualize preventive services; regularly assess patient risk factors.
  - Provide education to patients/parents/guardians.
- Develop a plan for staff and clinician education around preventive services and organizational goals for implementation of preventive services (should also include education around "level" of service and the rationale behind each level).
- Develop decision support processes in electronic medical record or for paper medical records to support clinicians and staff in delivery of specific components of Level I services.
- For those organizations with a paper medical record, create a "tickler" system that will generate reminders for preventive services in order to support completion of recommended Level I services.
- Develop a "catch-up" plan for those patients who are not on time with services by creating a tracking system that allows for periodic medical record audits to identify patient gaps in preventive services.
- Develop a collaborative relationship with patients/parents/guardians in order to activate/motivate them to practice preventive health while staying on time.
- Place throughout the facility patient education materials that focus on preventive services and the importance of each. Materials may include, but are not limited to, posters, pamphlets, videos and available Web sites, as well as services available in the community.

Implementation Tools

Chart Documentation/Checklists/Forms

Quality Measures

Quick Reference Guides/Physician Guides

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Related NQMC Measures

Preventive services for children and adolescents: percentage of patients who by age 13 years were up-to-date with recommended adolescent immunizations: 1) one HPV – human papillomavirus vaccine by age 13, 2) one MCV4 – meningococcal, 3) one Tdap – tetanus, diphtheria toxoids and acellular pertussis vaccine, and 4) one influenza vaccine within the last year.

Preventive services for children and adolescents: percentage of sexually active women age 25 years and younger who have had screening for chlamydia.

Preventive services for children and adolescents: percentage of newborns who have had neonatal screening for hemoglobinopathies, phenylketonuria and hypothyroidism in the first week of life.

Preventive services for children and adolescents: percentage of patients age five years and younger who have had vision impairment screening.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Wilkinson J, Bass C, Diem S, Gravley A, Harvey L, Maciosek M, McKeon K, Milteer L, Owens J, Rothe P, Snellman L, Solberg L, Vincent P. Preventive services for children and adolescents. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2013 Sep. 96 p. [229 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1995 Jun (revised 2013 Sep)

Guideline Developer(s)

Institute for Clinical Systems Improvement - Nonprofit Organization

Guideline Developer Comment

The Institute for Clinical Systems Improvement (ICSI) is comprised of 50+ medical group and hospital members representing 9,000 physicians in Minnesota and surrounding areas, and is sponsored by five nonprofit health plans. For a list of sponsors and participating organizations, see the ICSI Web site .

Source(s) of Funding

- The Institute for Clinical Systems Improvement (ICSI) provided the funding for this guideline. The annual dues of the member medical groups and sponsoring health plans fund ICSI's work. Individuals on the work group are not paid by ICSI, but are supported by their medical group for this work.
- ICSI facilitates and coordinates the guideline development and revision process. ICSI, member medical groups, and sponsoring health plans review and provide feedback, but do not have editorial control over the work group. All recommendations are based on the work group's independent evaluation of the evidence.

Guideline Committee

Preventive Services Steering Committee

Composition of Group That Authored the Guideline

Work Group Members: John M. Wilkinson, MD (*Work Group Leader*) (Mayo Clinic) (Family Medicine); Charles Bass, MD (HealthPartners Medical Group and Regions Hospital) (Family Medicine); Michael Maciosek, PhD (HealthPartners Medical Group and Regions Hospital) (Research); Peter Rothe, MD, FACP (HealthPartners Medical Group and Regions Hospital) (Internal Medicine/Geriatrics); Leonard Snellman, MD (HealthPartners Medical Group and Regions Hospital) (Pediatrics); Leif Solberg, MD (HealthPartners Medical Group and Regions Hospital) (Family Medicine); Leslie C. Milteer, PA-C (Multicare Associates) (Advanced Practitioner); Patricia Vincent, MD (Northwest Family Physicians) (Family Medicine); Kimberly J. McKeon, MD (Olmsted Medical Center) (OB/GYN); Lisa Harvey, RD, MPH (Park Nicollet Health Services) (Health Education); Andrea Gravley, RN, MAN, CPNP (South Lake Pediatrics) (Pediatrics); Susan Diem, MD, MPH (University of Minnesota Physicians) (Internal Medicine); Jacob Owens, MPH (Institute for Clinical Systems Improvement [ICSI]) (Project Manager)

Financial Disclosures/Conflicts of Interest

The Institute for Clinical Systems Improvement (ICSI) has long had a policy of transparency in declaring potential conflicting and competing interests of all individuals who participate in the development, revision and approval of ICSI guidelines and protocols.

In 2010, the ICSI Conflict of Interest Review Committee was established by the Board of Directors to review all disclosures and make recommendations to the board when steps should be taken to mitigate potential conflicts of interest, including recommendations regarding removal of work group members. This committee has adopted the Institute of Medicine Conflict of Interest standards as outlined in the report

Clinical Practice Guidelines We Can Trust (2011).

Where there are work group members with identified potential conflicts, these are disclosed and discussed at the initial work group meeting. These members are expected to recuse themselves from related discussions or authorship of related recommendations, as directed by the Conflict of Interest committee or requested by the work group.

The complete ICSI policy regarding Conflicts of Interest is available at the ICSI Web site .

Disclosure of Potential Conflicts of Interest

Charles Bass, MD (Work Group Member)
Family Physician, HealthPartners Medical Group and Regions Hospital
National, Regional, Local Committee Affiliations: None
Guideline-Related Activities: None
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

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Guideline-Related Activities: None
Research Grants: Received grant money to her institution from the National Institute on Aging for testosterone replacement in older men.
Financial/Non-Financial Conflicts of Interest: None

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National, Regional, Local Committee Affiliations: Maple Grove Hospital Lactation work group
Guideline-Related Activities: None
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

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Guideline-Related Activities: None
Research Grants: Receives grant money to institution from the Mayo Clinic related to decision support.
Financial/Non-Financial Conflicts of Interest: None

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National, Regional, Local Committee Affiliations: None
Guideline-Related Activities: None
Research Grants: Receives grant money to his institution from Robert Wood Johnson Foundation, Centers for Disease Control and National Institute for Health for preventive services, disease management and cancer treatment
Financial/Non-Financial Conflicts of Interest: None

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Guideline-Related Activities: None
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

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Clinician Assistant, Multicare Associates
National, Regional, Local Committee Affiliations: Minnesota Academy of PAs Board Member, American Academy of PAs Delegates Member
Guideline-Related Activities: None
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

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Guideline-Related Activities: None
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

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National, Regional, Local Committee Affiliations: None
Guideline-Related Activities: ICSI Respiratory Illness in Children and Adults
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

Leif Solberg, MD (Work Group Member)
Director Care Improvement Research, Family Medicine, HealthPartners Research Foundation
National, Regional, Local Committee Affiliations: Board member for HealthPartners Research Foundation.
Guideline-Related Activities: None
Research Grants: Receives grant monies paid to institution from Patient-Centered Outcomes Research Institute (PCORI) for high-tech imaging, Centers for Medicare and Medicaid Services (CMS) for COMPASS (Care of Mental and Physical and Substance Use Syndromes), Agency for Healthcare Research and Quality (AHRQ) for medical homes
Financial/Non-Financial Conflicts of Interest: None

Patricia Vincent, MD (Work Group Member)
Physician, Family Practice, Northwest Family Physicians
National, Regional, Local Committee Affiliations: None
Guideline-Related Activities: Board member for Preferred One Clinicians Association Insurance Company with money paid to her. Board member for Minnesota Academy of Family Clinicians Foundation, unpaid
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

John Wilkinson, MD (Work Group Leader)
Consultant, Department of Family Medicine, Assistant Professor of Family Medicine, Mayo Clinic and Mayo Foundation
National, Regional, Local Committee Affiliations: None
Guideline-Related Activities: None
Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Wilkinson J, Bass C, Diem S, Gravley A, Harvey L, Hayes R, Johnson K, Maciosek M, McKeon K, Milteer L, Morgan J, Rothe P, Snellman L, Solberg L, Storlie C, Vincent P. Preventive services children and adolescents. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2012 Sep. 98 p.

Guideline Availability

Available for purchase from the Institute for Clinical Systems Improvement (ICSI) Web site . Also available to ICSI members for free at the ICSI Web site and to Minnesota health care organizations free by request at the ICSI Web site .

Availability of Companion Documents

The following companion is provided to those who access the guideline (see the "Guideline Availability" field):

> Preventive services for children and adolescents. Executive summary. Bloomington (MN): Institute for Clinical Systems Improvement; 2013 Sep.

Additionally, the appendices in the original guideline document include body mass index (BMI) charts for boys and girls, a visit schedule, suggested counseling messages to address health-related behaviors and injury prevention, and a shared-decision making model.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on July 10, 2000. The information was verified by the guideline developer on April 25, 2001. This NGC summary was updated by ECRI on April 15, 2002 and most recently on March 14, 2003. The updated information was verified by the guideline developer on May 15, 2003. This NGC summary was updated again by ECRI on March 22, 2004, November 10, 2004, December 7, 2004, December 29, 2005, and on January 25, 2007. This NGC summary was updated by ECRI Institute on July 9, 2007 following the FDA advisory on RotaTeq (Rotavirus, Live, Oral, Pentavalent) vaccine. This NGC summary was updated by ECRI Institute on December 21, 2007, January 9, 2009, and September 9, 2010. This NGC summary was updated by ECRI Institute on January 24, 2011. This NGC summary was updated by ECRI Institute on September 12, 2011 following the U.S. Food and Drug Administration advisory on Celexa (citalopram hydrobromide). This NGC summary was updated by ECRI Institute on March 6, 2012. This NGC summary was updated by ECRI Institute on November 12, 2012. This NGC summary was updated by ECRI Institute on January 23, 2014.

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